## REMARKS/ARGUMENTS

The Applicant thanks the Examiner for the Office Action dated October 4, 2007.

**Claim Rejections – 35 USC 103(a)**

The Applicant has considered in detail in the relevance of the new citation. In response to the objections raised by the Examiner in the recent Office Action, claims 1, 19 and 38 have been amended as follows: the feature introduced with the Applicant's previous response has been removed; and an additional limitation has been inserted in claims 1, 19 and 38 by the incorporation of the subject-matter of original claims 17, 36 and 53. Hence, all independent claims now specify that the heater element has a mass of less than 10 nanograms.

With reference to page 11 of the Office Action, the Examiner asserts that Cornell teaches the feature of a heater element having a mass of less than 10 nanograms. The Examiner makes specific reference to column 5, lines 14-20 of Cornell in support of this assertion.

> It is possible to expel **an ink drop having a mass of between 2 and 4 nanograms (ng)** with a heating element such as shown in FIG. 1 while consuming less than 1 micro-joule (j) of energy per fire as long as the thickness of the DLC island does not exceed 8700 Angstroms (A). However, if the DLC layer 12 extended everywhere instead of just layer 14, lateral diffusion would decrease the efficiency of element 1, as shown in FIG. 4(a). [emphasis added]

Cornell is teaching that an ink drop of 2-4 nanograms in mass, may be expelled using a particular heater element. However, this passage of Cornell says nothing about the mass of the heater element itself. As far as the Applicant knows, there is no correlation between the mass of the ink droplet expelled and the mass of the heater element. The factors determining what mass of ink droplet may be expelled would include: the configuration of nozzle chamber, the power input into the heater element, the viscosity of ink *etc*. Cornell does not teach any correlation between the mass of heater element and the mass of the ink droplet, and it would be perverse to attempt to derive such a teaching from the passage identified by the Examiner.

In the Applicant's assessment, using the materials recommended by Cornell (*e.g.* high density tantalum-aluminum alloy – see column 4, line 28) and the size of heater elements

taught by Cornell, it would be expected that Cornell's heater element would have a mass well in excess of 10 nanograms. There is certainly no suggestion in Cornell that the mass of the heater element is less than 10 nanograms, and the skilled person would not expect such suggestion, given the high-density materials taught by Cornell.

Accordingly, contrary to the Examiner's assertions, it is submitted that Cornell fails to teach the claim feature of a heater element having a mass of less than 10 nanograms. In view of this shortcoming of Cornell, and in view of the fact that none of the available prior art teaches this limitation, it is submitted that the present invention (as defined in claims 1, 19 and 38) is not obvious in view of the combined teachings of Manaka, Tsung Pan and Cornell.

It is respectfully submitted that all of the Examiner's objections have been successfully traversed. Accordingly, it is submitted that the application is now in condition for allowance. Reconsideration and allowance of the application is courteously solicited.

Very respectfully,

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